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How to Test for Baking Quality in Wheat

(Sedimentation Test)

There is a close relation between the size of loaf and the amount of sediment suspended in the liquid in graduated cylinder.



STEPS IN TESTING



1. Make and record a moisture test on a clean (docking removed) sample of wheat



2. Grind about 200 grams (app. 1/2 lb.) of this sample through motor-driven corregated steel roll mill such as the Weston Moisture Meter for grain (formerly known as Tag-Heppenstall Moisture Meter). The clearance between rolls should be 0.023 inches and the rolls should be operated at about 30 r.p.m. If Weston Moisture Meter is used insert flaxseed shims. Rerun sample through four more times (total of 5 times through).



3. Place the ground wheat on a 100 mesh woven wire sieve and sift by a horizontal circular motion at about 200 r.p.m. for 1-1/2 minutes so that any point of the sieve will describe circles of about 2" in diameter.

4. Discard the bran. Yield of flour should be about 25 grams.

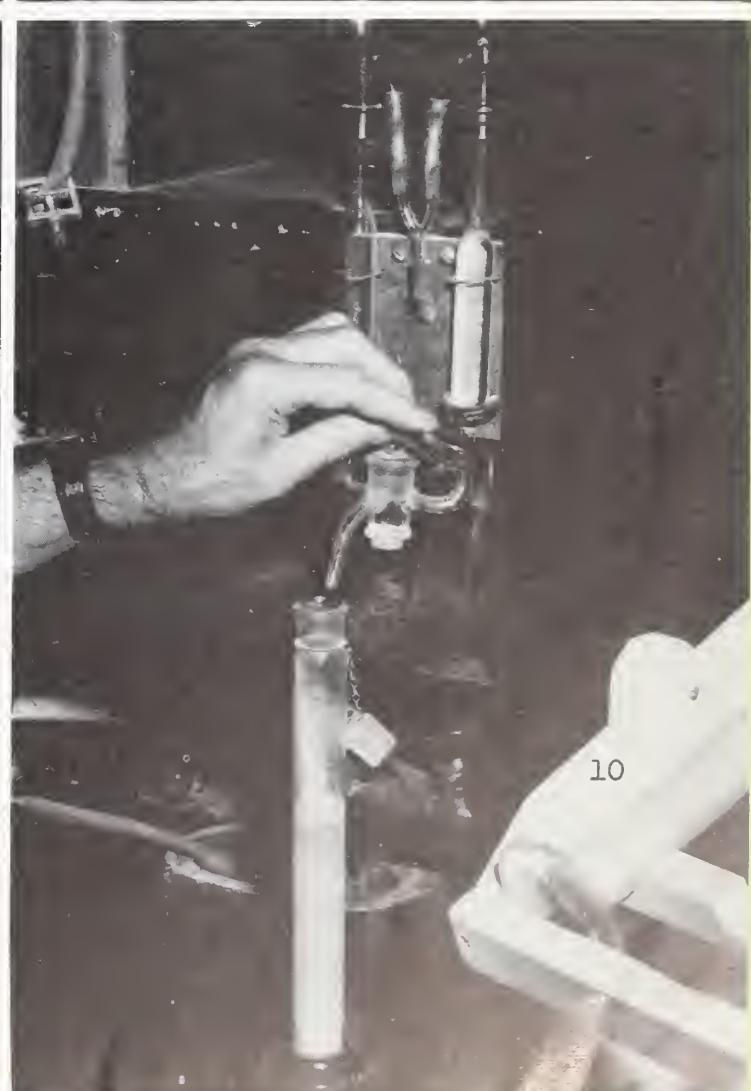
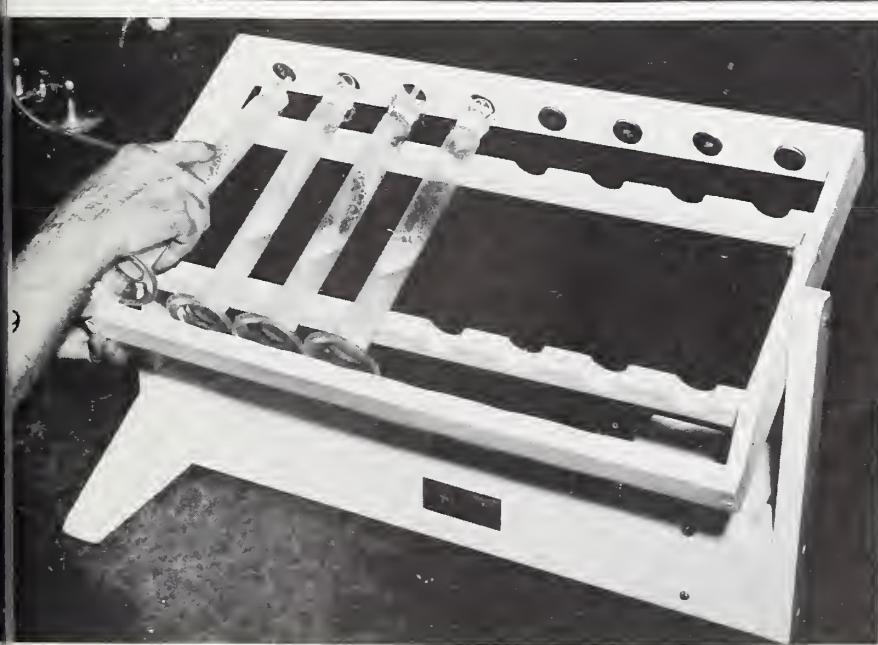
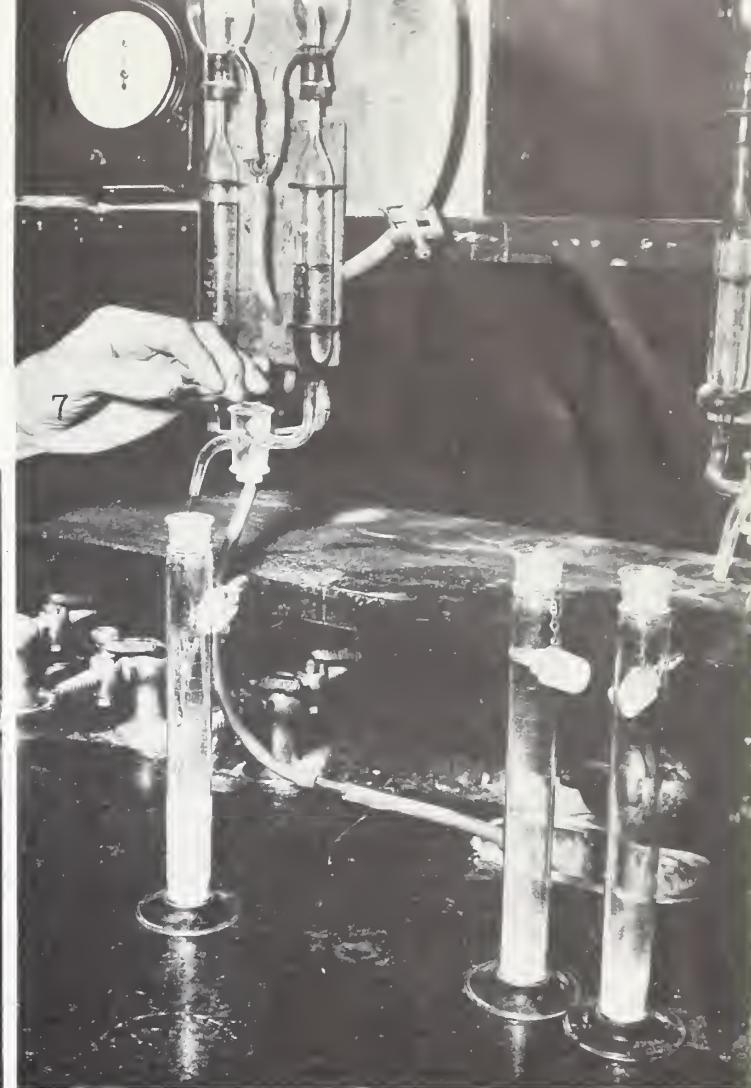


5. Weigh out 3.2 grams of flour for the test.

6. Transfer the weighed sample into a 100 ml. glass-stoppered graduated cylinder. (Cylinder should be one which measures from 180 to 185 mm. between 0 at the bottom and the 100 ml. mark at the top.)

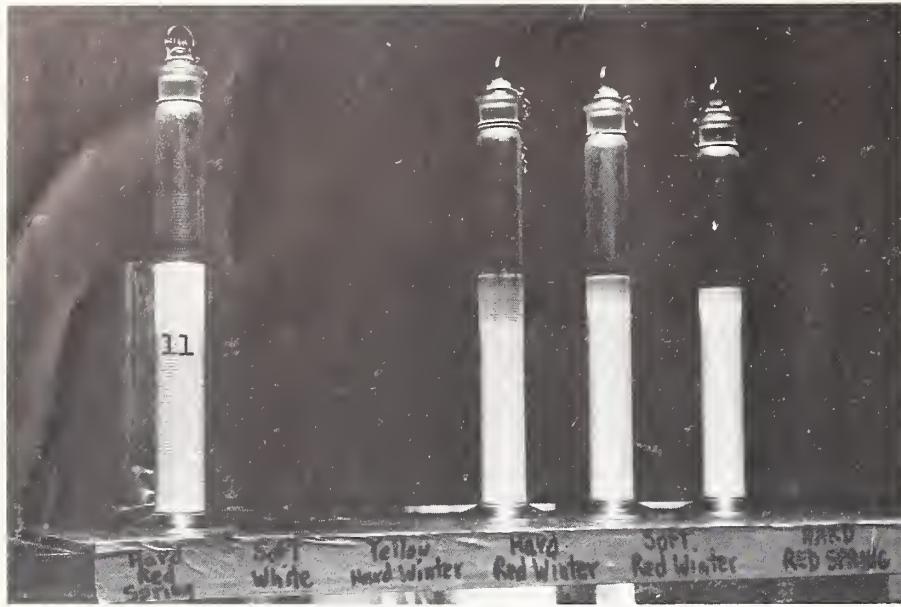
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7. From an automatic burette add 50 ml. of a solution of 4 mg. of brom phenyl blue in a liter of distilled water.

8. Thoroughly mix the flour and water by moving glass-stoppered cylinder horizontally lengthwise alternating right to left through a space of about 7 inches, 12 times in each direction in about 5 seconds.



9. Place cylinder with flour-water solution mixture on a rack designed to rock through a 0° arc - 30° each side of the horizontal position at the rate of 40 times per minute. Mix for 5 minutes.

10. Remove cylinder and add 25 ml. of a reagent containing 0.5 normal lactic acid and 20% isopropyl alcohol and return to the rocker. Mix for 5 more minutes.



11. Remove cylinder and place in an upright position for easy reading. Let stand exactly 5 minutes.



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12. At the end of the 5 minute period read the volume of sediment in the cylinder. A light back of cylinder makes easy reading. Record results and adjust to the 14% moisture level of the wheat. This is the sedimentation value.

To make adjustment for moisture use this formula:

$$\text{Sedimentation value} = \text{Reading obtained} \times \frac{100-14}{100\% \text{ moisture of original wheat in sample}}$$

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